

Date: Thursday, 5/3/2007 11:36:15 AM
 User: Kim Johnston

Process Sheet

| | | | | | | | |
|-----------------------|---------------------------------------|----------|--------------------|----------------------------------|------|----------------|--|
| Customer | : CU-DAR001 Dart Helicopters Services | | Drawing Name | : 412 X-TUBE INST,LOW NARROW AFT | | | |
| Job Number | : 32186 | | Part Number | : D412664205 | | | |
| Estimate Number | : 12817 | | Drawing Number | : D412-664 UNDER REV | | | |
| P.O. Number | : N/A | | Project Number | : N/A | | | |
| This Issue | : 5/3/2007 | S.O. No. | : N/A | | Type | : LANDING GEAR | |
| Prsht Rev. | : NC | | Drawing Revision | : U/R | | | |
| First Issue | : N/A | | Material | : N/A | | | |
| Previous Run | : 32184 | | Due Date | : 8/6/2007 | | | |
| Written By | | | Qty: | 1 Um: Each | | | |
| Checked & Approved By | | | <i>[Signature]</i> | | | | |
| Comment | : Est Rev A New Issue 07-04-05 JLM | | | | | | |

Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : | |
|---------|-----------------------|--|---------------------|
| 1.0 | DC | DOCUMENT CONTROL | |
| | | Comment: DOCUMENT CONTROL Photocopy bluefile and create labels as per PPP D412-664-205 CHG001 | <i>Per attached</i> |
| 2.0 | PACKAGING 1 | PACKAGING RESOURCE #1 | |
| | | Comment: PACKAGING RESOURCE #1 Pick Packing Kit | |
| 3.0 | D412664245 | CROSSTUBE ASSEMBLY, LOW NARROW AFT, 412C | |
| | | Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Crosstube 412 Low Batch: M30935 | |
| 4.0 | AN640A | Bolt | |
| | | Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s) Bolt Batch: M1011374 | <i>SL</i> |
| 5.0 | AN641A | Bolt | |
| | | Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s) Bolt Batch: M100743 | <i>2/8/17 SP</i> |

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:36:15 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 412 X-TUBE INST,LOW NARROW AFT

Job Number: 32186

Part Number: D412664205

Job Number:



Seq. #: Machine Or Operation:

Description :

6.0 MS21042L6 Nut



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)

Nut

Batch: M101660

SP

7.0 AN960JD616 Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Washer

Batch: M104374

7/8/17

SP

8.0 QC4 INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

05 07/08/17 (41)

9.0 PACKAGING 1 PACKAGING RESOURCE #1



59 REV: Draft

07/08/17

Comment: HAND FINISHING RESOURCE #1

Identify and pack for shipping as per PPP D412-664-105

10.0 QC21 FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07.08.17

Job Completion



U 07.08.17

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

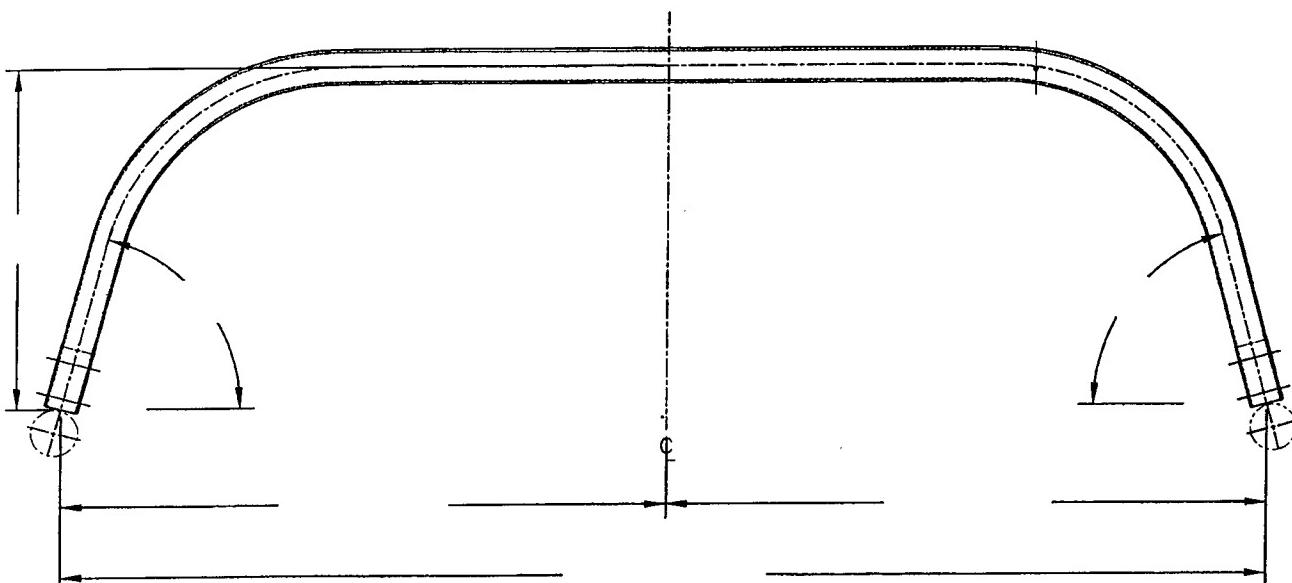
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

| | | |
|---|--------------|--------------|
| DART AEROSPACE LTD | Work Order: | 32186 |
| Description: Crosstube Low Narrow Aft (412) | Part Number: | D412-664-205 |
| Inspection Dwg: D412-664-245 Rev: C | | Page 1 of 1 |

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 16.69 | 16.95 |
| 1/2 Span | 46.47 | 46.73 |
| Angle | 49° | 52° |
| Total Span | 92.94 | 93.46 |



| |
|----------|
| Comments |
| |
| |
| |
| |

See B30935.

| | |
|-----------------|--|
| QC15 Inspection | |
| Date | |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------|------------|--------------------|
| A | 07.04.27 | New Issue | KJ/JM | <i>[Signature]</i> |

DART

| | | | |
|----------|----------|---|--------------|
| DESIGN | DRAWN BY | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | APPROVED | DRAWING NO. | REV. C |
| | | D412-664-245 | SHEET 1 OF 3 |
| DATE | | TITLE | SCALE |
| 07.03.29 | | CROSSTUBE ASS'Y (412 LOW-N AFT) | NTS |
| A | 06.12.01 | NEW ISSUE | |
| B | 07.03.01 | CHG CUFF AREA, CHG RUBBER CUSHION | |
| C | 07.03.29 | CHG RIVET AND RUBBER CUSHION | |

RELEASED

07.04.24

PARTS LIST:

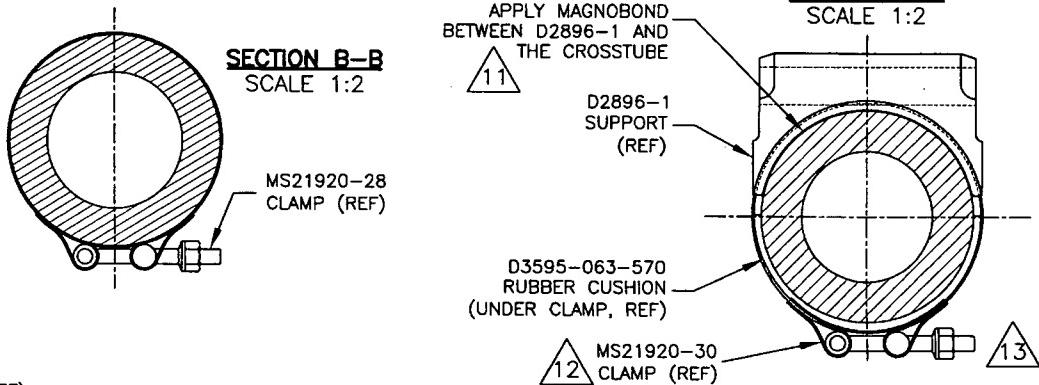
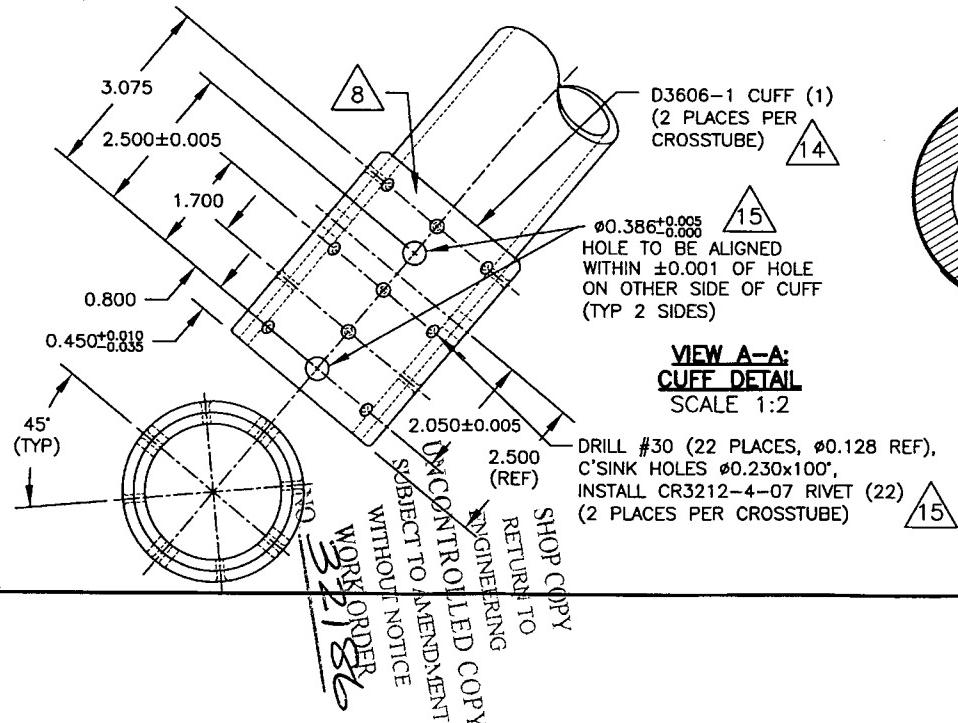
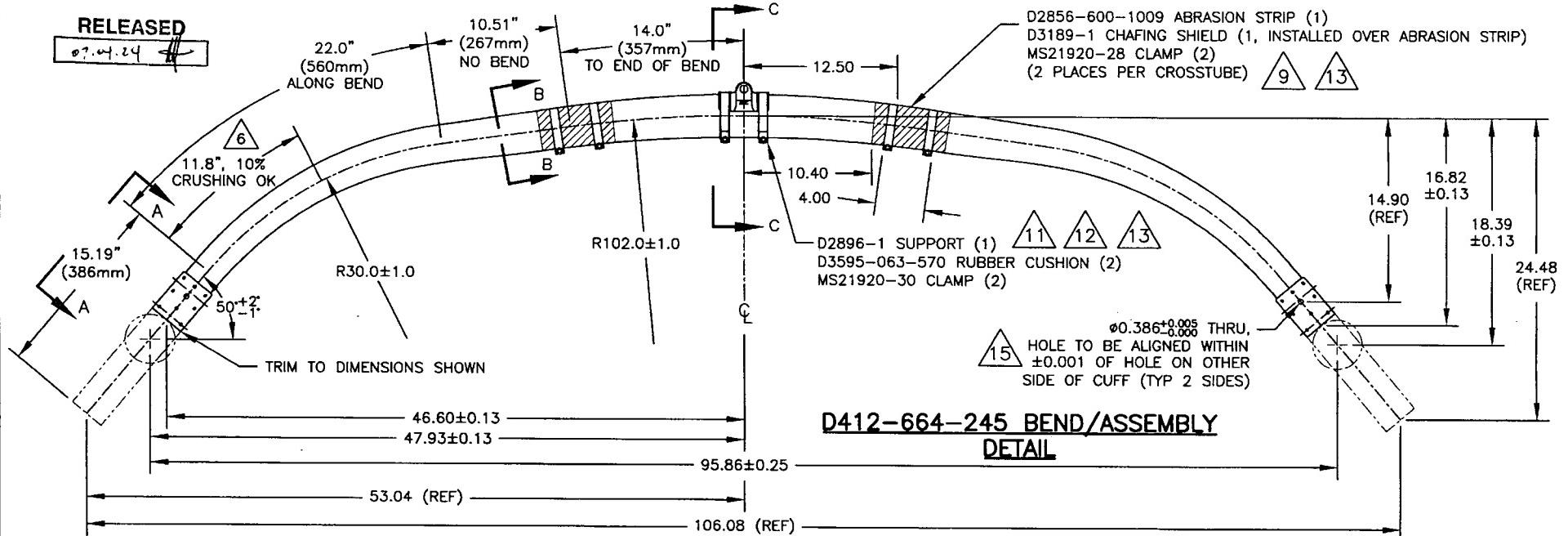
| Qty | Part Number | Description |
|-----|-------------------|---|
| X | D412-664-245 | CROSSTUBE ASSEMBLY (412 LOW-NARROW AFT) |
| 1 | D6009-129 | CROSSTUBE |
| 2 | D2856-600-1009 | ABRASION STRIP |
| 1 | D2896-1 | SUPPORT |
| 2 | D3189-1 | CHAFING SHIELD |
| 2 | D3595-063-570 | RUBBER CUSHION |
| 2 | D3606-1 | CUFF |
| 44 | CR3212-4-07 | RIVET (OR M7885/3-4-07) |
| 4 | MS21920-28 | CLAMP |
| 2 | MS21920-30 | CLAMP (OR MS21920-32) |
| A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE) |
| A/R | SIKAFLEX-241/-291 | SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT) |

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
 - 2) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 123.59 ± 0.020 (BEFORE BENDING/TRIMMING)
 - 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
 - 4) PART IS SYMMETRIC ABOUT CENTERLINE.
 - 5) RUN-OFF PART, BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
 - 6) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
 - 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
 - 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
 - 9) INSTALL D2856-600-1009 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
 - 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
 - 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
 - 12) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
 - 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
 - 14) INSTALL D3606-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
 - 15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.
- SHOP COPY
RETURN TO ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 32186

RELEASED

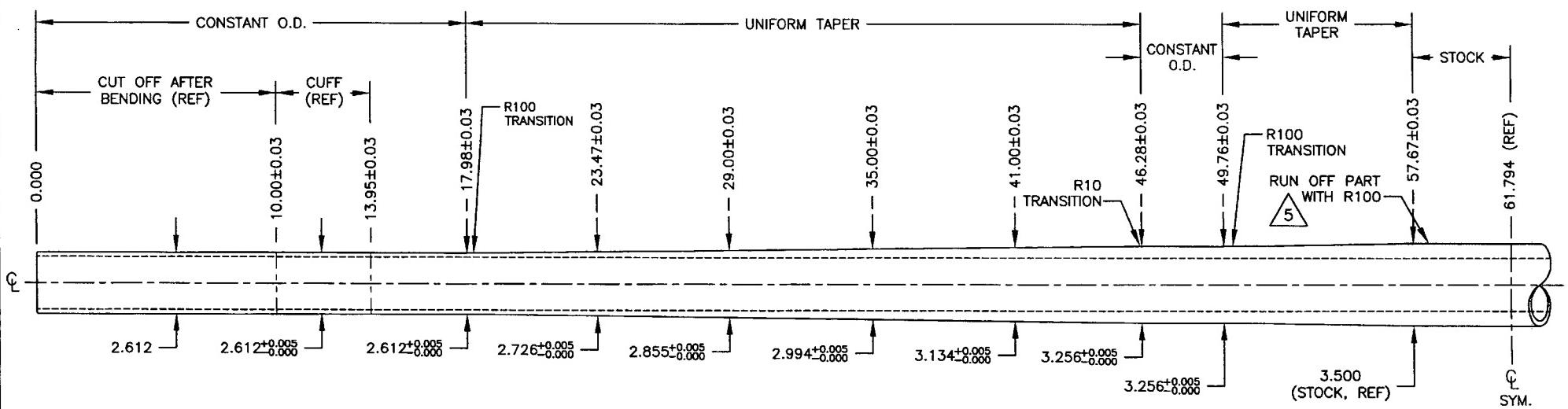
07-04-24



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DART AEROSPACE LTD.

| DESIGN | DRAWN BY | DART | DART AEROSPACE LTD. HANDBURY, ONTARIO, CANADA |
|----------|----------|------|--|
| GP | GP | | REV. C |
| CHECKED | APPROVED | | DRAWING NO. |
| | | | D412-664-245 |
| DATE | | | SHEET 2 OF 3 |
| 07.03.29 | | | TITLE |
| | | | CROSSTUBE (412 LOW-NARROW AFT) |



D412-664-245 MACHINING DETAIL

RELEASED

07.04.19

NO 3218
WORK ORDER
SUBJECT TO AMENDMENT
WITHOUT NOTICE
UNCONTROLLED COPY
ENGINEERING
REFERENCE TO
SHOP COPY

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|---|--|--------------------------------|----------|--------------|--|
| CHECKED | | APPROVED | | DRAWING NO. | REV. C |
| | | | | D412-664-245 | SHEET 3 OF 3 |
| DATE | | TITLE | | SCALE | 1:4 |
| 07.03.29 | | CROSSTUBE (412 LOW-NARROW AFT) | | | |

Date: Thursday, 5/3/2007 11:36:15 AM
 User: Kim Johnston

Process Sheet

| | | | | | | | |
|-----------------------|-------------------------------------|----------|--------------|------------------|--------------------------------|------|------------|
| Customer | CU-DAR001 Dart Helicopters Services | | | Drawing Name | 412 X-TUBE INST,LOW NARROW AFT | | |
| Job Number | 32186 | | | Part Number | D412664205 | | |
| Estimate Number | 12817 | | | Drawing Number | D412-664 UNDER REV | | |
| P.O. Number | | | | Project Number | N/A | | |
| This Issue | 5/3/2007 | S.O. No. | | Drawing Revision | <u>URC</u> | | |
| Prsht Rev. | NC | | | Material | | | |
| First Issue | / / | Type | LANDING GEAR | Due Date | 8/6/2007 | Qty: | 1 Um: Each |
| Previous Run | 32184 | | | | | | |
| Written By | <u>KJ07.05.03</u> | | | | | | |
| Checked & Approved By | | | | | | | |
| Comment | Est Rev.A New Issue 07-04-05 JLM | | | | | | |

Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---|
| 1.0 | DC | DOCUMENT CONTROL |
| | | Comment: DOCUMENT CONTROL Photocopy bluefile and create labels as per PPP D412-664-205 CHG001 <i>07.06.14</i> |
| 2.0 | PACKAGING 1 | PACKAGING RESOURCE #1 |
| | | Comment: PACKAGING RESOURCE #1 Pick Packing Kit <i>REFRESHING</i> |
| 3.0 | D412664245 | CROSSTUBE ASSEMBLY, LOW NARROW AFT, 412C |
| | | Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Crosstube 412 Low Batch: _____ |
| 4.0 | AN640A | Bolt |
| | | Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s) Bolt Batch: _____ |
| 5.0 | AN641A | Bolt |
| | | Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s) Bolt Batch: _____ |